

**COURSE OVERVIEW LE0171**  
**Sampling and Testing Procedures**

**Course Title**

Sampling and Testing Procedures

**Course Date/Venue**

Session 1: May 19-23, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: September 07-11, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



**Course Reference**

LE0171



**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs

**Course Description**



***This practical and highly-interactive course includes practical sessions and exercises where participants will visit the laboratory and they will be introduced to various lab instruments and modern laboratory practices. Practical sessions will be performed using one of the lab equipment in order to apply the theory learnt in the class.***



Analytical procedures often start with the instruction to take a given quantity of a representative sample. It is clear that the only perfect sample is the entire lot; anything less carries with it a statistical probability that it will be less than representative. Also, the smaller the sample, the greater the likelihood that it will deviate in composition from the whole. Statistically – greater than 66% of all analytical errors contained in analytical results come from the sampling process.



The analytical result may depend on the method used for the analysis, but it always depends on the type of sampling plan used. Knowledge of the potential sampling error is important since if the sampling error is more than about 2/3 of the total error, any attempt to reduce the analytical error is of little value.

Therefore, when you are assessing the uncertainty of the final result you should remember the contribution from sampling errors. These errors cannot be evaluated or controlled using standards or reference materials.

In this course will be examined all the sampling techniques for crude oil and petroleum products (gas and liquids) according to the international accepted standards, as API, ASTM, etc.

This course is designed to provide participants with a detailed and up-to-date overview of oil, gas sampling and testing procedures. It covers the sampling and sampling handling; the effect of sampling error on overall precision; the sample contamination and preservation; the transmittal of samples to laboratory, sample receiving and disposal of completed samples; the data and sample accountability; the standard practice for manual sampling of petroleum and petroleum products; the standard practice for automatic sampling of liquid petroleum and petroleum products; and the statistical aspects of measuring and sampling statistical concepts and procedures in measurement.

During this interactive course, participants will learn the sampling compressed and liquefied petroleum products; the international shipping instructions for samples, ground package systems and GHS labelling; the safe transportation of hazardous materials and analysis; the specific to crude oil specific gravity or density, vapor pressure (Reid VP) and water content covering basic sediment and water (BSW); the salt content, acid components content, fluid rheology, pour point, kinematic viscosity and wax content; and the gases and oil products distillation, RVP and flash point.

### **Course Objectives**

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on oil, gas sampling and testing procedures
- Carryout sampling and sampling handling and identify the effect of sampling error on overall precision
- Employ sample contamination and preservation
- Illustrate transmittal of samples to laboratory, sample receiving and disposal of completed samples
- Report data and sample accountability
- Implement standard practice for manual sampling of petroleum and petroleum products
- Apply standard practice for automatic sampling of liquid petroleum and petroleum products
- Carryout statistical aspects of measuring and sampling statistical concepts and procedures in measurement
- Identify sampling compressed and liquefied petroleum products
- Discuss international shipping instructions for samples, ground package systems and GHS labelling
- Apply safe transportation of hazardous materials and analysis specific to crude oil
- Determine specific gravity or density, vapor pressure (Reid VP) and water content covering basic sediment and water (BSW)
- Recognize salt content, acid components content, fluid rheology, pour point, kinematic viscosity and wax content
- Analyze gases and oil products as well as discuss distillation, RVP and flash point

### **Exclusive Smart Training Kit - H-STK®**



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.

### **Who Should Attend**

This course provides an overview of all significant aspects and considerations of oil, gas sampling and testing procedures for process engineers, chemists, laboratory chemists, laboratory technicians and samples collectors.

### **Training Methodology**

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

### **Course Fee**

**US\$ 5,500** per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

### **Accommodation**


Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

**Course Certificate(s)**

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.


**Certificate Accreditations**

Certificates are accredited by the following international accreditation organizations:-

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council for Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology’s courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant’s involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant’s CEU and PDH Transcript of Records upon request.

**Course Instructor(s)**

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



**Mr. Kyle Bester** is a **Senior Water Engineer** with extensive years of practical experience within the **Oil & Gas, Power & Water Utilities** and other **Energy** sectors. His expertise includes **Water Sampling Techniques, Water Chemistry for Power Plant, Water Sampling and Chemical Portable Water Analysis, Water Reservoir, Water Tanks, Water Pumping Station, Water Distribution System, Water Network System, Water Pipes & Fittings, Water Hydraulic Modelling, Water Storage Reservoir, Reservoirs & Pumping**

**Stations Design & Operation, Pumping Systems, Interconnecting Pipelines, Water Network Hydraulic Simulation Modelling, Water Supply Design, Water Balance Modelling, Water Distribution Network, Water Network System Analysis, Water Forecasts Demand, Water Pipelines Materials & Fittings, Water Network System Design, Pump Houses & Booster Pumping Stations, Potable Water Transmission, Water Distribution Network, Districts Meters Areas (DMAs), Water Supply & Desalination Plants Rehabilitation, Water Reservoirs & Pumping Stations, Water Network System Extension, Water Network System Replacement & Upgrade, Water Networks Optimization, Water Supply & Distribution Systems Efficiency & Effectiveness, Pipe Materials & Fittings, Service Reservoir Design & Operation, Pipes & Fittings, Water Network System Design & Operation, Supply Water Network Rehabilitation, Water Loss Reduction, Main Water System Construction, Main Water Line Construction, Transmission & Distribution Pipelines, Water Distribution Design & Modelling, Water Supply System, Oilfield Water Treatment, Best Practice in Sewage & Industrial Wastewater Treatment & Environmental Protection, Water Distribution Design & Modelling, Desilting, Treating & Handling Oily Water, Water Sector Orientation, Environmental Impact Assessment (EIA), Potable Water, Reverse Osmosis Treatment Technology and Chlorination System, Well Inventory, Monitoring & Conservation, Qualitative Analysis of Soil & Ground Water, Water Networking, Hydraulic Modelling Systems, Pumping Stations, Centrifugal Pumps, Pipelines & Pumping, Water Reservoirs, Water Storage Tanks, Extended Activated Sludge Treatment, Sewage & Industrial Wastewater Treatment & Environmental Protection, Supervising & Monitoring Sewage Works, Water Desalination Technologies, Water Distribution & Pump Station, Best Water Equipment Selection & Inspection, Hydraulic Modelling for Water Network Design, Water Utility Industry, Water Desalination Technologies & New Development, Water Hydrology, Water Conveyors, Water Networks Rehabilitation.** He is currently the **Part Owner & Manager** of Extreme Water SA wherein he manages, re-designed and commissioned a water and wastewater treatment plants.

During his career life, Mr. Bester has gained his practical and field experience through his various significant positions and dedication as the **Project Manager, Asset Manager, Manager, Water Engineer, Supervisor, Team Leader, Analyst, Process Technician, Landscape Designer and Senior Instructor/Trainer** for various international companies, infrastructures, water and wastewater treatment plants from New Zealand, UK, Samoa, Zimbabwe and South Africa, just to name a few.

Mr. Bester holds a **Diploma in Wastewater Treatment** and a **National Certificate in Wastewater & Water Treatment**. Further, he is a **Certified Instructor/Trainer, an Approved Chemical Handler** and has delivered numerous courses, trainings, conferences, seminars and workshops internationally.

**Course Program**

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

**Day 1**

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Sampling &amp; Sample Handling</b> Representative Sampling • Effect of Sampling Error on Overall Precision • Sample Contamination and Preservation
0930 – 0945	Break
0945 – 1100	<b>Sampling &amp; Sample Handling (cont'd)</b> Transmittal of Samples to Laboratory and Sample Receiving • Disposal of Completed Samples • Reporting of Data and Sample Accountability
1100 – 1230	<b>Standard Practice for Manual Sampling of Petroleum &amp; Petroleum Products (API MPMS 8.1)</b>
1230 – 1245	Break
1245 – 1415	<b>Standard Practice for Manual Sampling of Petroleum &amp; Petroleum Products (API MPMS 8.1) (cont'd)</b>
1415 – 1430	<b>Recap</b>
1430	Lunch & End of Day One

**Day 2**

0730 – 0930	<b>Standard Practice for Automatic Sampling of Liquid Petroleum &amp; Petroleum Products (API MPMS 8.2)</b>
0930 – 0945	Break
0945 – 1145	<b>Standard Practice for Automatic Sampling of Liquid Petroleum &amp; Petroleum Products (API MPMS 8.2) (cont'd)</b>
1145 – 1230	<b>Statistical Aspects of Measuring &amp; Sampling Statistical Concepts &amp; Procedures in Measurement (API MPMS 13.1)</b>
1230 – 1245	Break
1245 – 1415	<b>Statistical Aspects of Measuring &amp; Sampling Statistical Concepts &amp; Procedures in Measurement (API MPMS 13.1) (cont'd)</b>
1415 – 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3**

0730 – 0930	<b>Sampling Compressed &amp; Liquefied Petroleum Products - Case Studies/Examples</b>
0930 – 0945	Break
0945 – 1145	<b>Sampling Compressed &amp; Liquefied Petroleum Products - Case Studies/Examples (cont'd)</b>
1145 – 1230	<b>Manual Sampling of Liquid Petroleum Products - Case Studies/Examples</b>
1230 – 1245	Break
1245 – 1415	<b>Manual Sampling of Liquid Petroleum Products - Case Studies/Examples (cont'd)</b>
1415 – 1430	<b>Recap</b>
1430	Lunch & End of Day Three

**Day 4**

0730 – 0930	<b>International Shipping Instructions for Samples</b>
0930 – 0945	Break
0945 – 1145	<b>Ground Package Systems – GHS Labelling</b>
1145 – 1230	<b>Safe Transportation of Hazardous Materials</b>
1230 – 1245	Break
1245 – 1415	<b>Safe Transportation of Hazardous Materials (cont'd)</b>
1415 – 1430	<b>Recap</b>
1430	Lunch & End of Day Four

**Day 5**

0730 – 0930	<b>Analyzes Specific to Crude Oil</b> Specific Gravity or Density • Vapor Pressure (Reid VP) • Water Content: Basic Sediment & Water (BSW)
0930 – 0945	Break
0945 – 1145	<b>Analyzes Specific to Crude Oil (cont'd)</b> Salt Content: • Acid Components Content (H2S Content) • Fluid Rheology: Pour Point, Kinematic Viscosity, Wax Content
1145 – 1230	<b>Analyzing Gases</b> Introduction to Gas Chromatography
1230 – 1245	Break
1245 – 1345	<b>Analyzing Oil Products</b> Distillation • RVP • Flash Point
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

**Practical Sessions**

Lab Site visit will be organized during the course for delegates to practice the theory learnt:-



**Course Coordinator**

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